

**REMARKS**

By this Amendment, Applicants amend claims 1, 14, and 19. Claims 1-4, 6-14, and 16-22 are pending in this application.

In the Final Office Action,<sup>1</sup> the Examiner rejected claims 1-4, 6-14, and 16-21 under 35 U.S.C. § 103(a) as being unpatentable over Eppler (U.S. Patent No. 6,084,989) in view of Schipper (U.S. Patent No. 5,815,118). Applicants respectfully traverse the rejection because the Examiner has not demonstrated a *prima facie* case of obviousness. To establish a proper *prima facie* case of obviousness under 35 U.S.C. § 103(a), the Examiner must demonstrate each of three requirements. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. See M.P.E.P. § 2143.03 (8<sup>th</sup> ed. 2001). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. See M.P.E.P. § 2143.01 (8<sup>th</sup> ed. 2001). Third, a reasonable expectation of success must exist. See M.P.E.P. § 2143.02 (8<sup>th</sup> ed. 2001). Moreover, each of these requirements must be found in the prior art, not in applicant's disclosure. See M.P.E.P. § 2143 (8<sup>th</sup> ed. 2001).

Claim 1 recites a method including, among other steps, "creating a mathematical georeferencing function, based on the first point pair and the second point pair, for assigning corresponding geographic coordinates to any one of the plurality of pixel

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<sup>1</sup> The Final Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Final Office Action.

locations.” Eppler and Schipper, whether taken alone or in combination, do not disclose or suggest at least this step of claim 1.

In the Advisory Action mailed November 1, 2005, the Examiner contends that Eppler “teaches that parameters can be derived by fitting line and pixel image coordinates (i.e. x-y domain) of salient features, or landmarks, to their known latitude, longitude (i.e. georeferencing domain), and height on the Earth.” See Advisory Action, page 2, citing col. 1, lines 29-32 of Eppler. Applicants respectfully disagree that the Examiner’s contentions establish that Eppler discloses or suggests “creating a mathematical georeferencing function, based on the first point pair and the second point pair, for assigning corresponding geographic coordinates to any one of the plurality of pixel locations,” as recited in claim 1.

Applicants note that Eppler teaches determining orbit and attitude parameters by fitting line and pixel image coordinates of features to their known latitude and longitude, and height on the Earth. See col. 1, lines 24-32. In other words, the portion cited by the Examiner demonstrates that, to use digitized images of Earth obtained by a satellite-based imaging system, a pixel coordinate on a map may be assigned a latitude and longitude that is already known for that pixel coordinates. The latitude and longitude may already be known because the selected pixel coordinates correspond to a landmark. See Eppler, col. 1, lines 24-32. Since the latitude and longitude of the selected landmark is known, the pixel coordinates may be assigned their corresponding latitude and longitude. Assigning pixel coordinates of a landmark to their corresponding latitude and longitude, however, does not constitute or suggest “creating a mathematical georeferencing function, based on the first point pair and the second point pair, for

assigning corresponding geographic coordinates to any one of the plurality of pixel locations,” as recited in claim 1.

In the Advisory Action, the Examiner also cites to Eppler's mathematical model. See Advisory Action, page 2. However, Eppler's mathematical model does not constitute a georeferencing function, nor does Eppler teach creating a mathematical georeferencing function that assigns appropriate geographic coordinates to any one of a plurality of pixel locations on a map. Instead, the Eppler system provides an error correction technique that takes the difference between “known” and “predicted” locations of a pre-stored geographic feature and calculates “error coefficients” for later use on board a spacecraft to correct errors in its location prediction algorithm. See, for example, col. 2, lines 1-59. In particular, according to Eppler, “a digitized image [is] generated by a satellite-based imaging system and ... error values [are generated] indicative of the misregistration between the actual position of the landmarks in the digitized images and their desired position. The error values are then used to adjust the optical line of sight of the imaging system to produce optimum registration.” See col. 1, line 66 to col. 2, line 5. To do so, Eppler “automatically determines line and pixel coordinates of landmarks in the digitized image with subpixel accuracy. The system and method use landmarks in symbolic form, and in particular, perimeters of lakes and islands, derived from precise cartographic source materials.” See col. 2, lines 6-12. See also col. 4, lines 36-50, which discloses creation of landmark database 27 by using a list of names and center coordinates of more than 100 landmarks and storing the exact geodetic coordinates of points on the perimeter of each landmark.

In other words, the Eppler system processes two paired, georeferenced geographic features, namely, a vector surface feature and the same feature upsampled and extracted from the raster image. The location of the vector feature retrieved from the landmark database is considered to be a reference location. The geographic feature that has been “upsampled” and extracted from the satellite photo has an associated location, predicted by the mathematical model of the observation platform based on at least an assumed position and attitude of the platform and “aim” of a camera. Accordingly, the Eppler system uses the difference between an actual position of a geographic feature, as indicated by a polygon retrieved from the landmark database, and the predicted location of the corresponding feature from a satellite photo.

Furthermore, as disclosed by Eppler, “[t]he matching algorithms generate row and column offset error values indicative of the offset between the actual position of the landmark and the desired position of the landmark in the image (defined by the landmark geodetic coordinates stored in the database)” (emphasis added). See col. 2, lines 32-37. In the Eppler system, if an object does not exist in the database, the object cannot be shown. Eppler, therefore, does not teach or suggest “creating a mathematical georeferencing function, based on the first point pair and the second point pair, for assigning corresponding geographic coordinates to any one of the plurality of pixel locations,” as recited in claim 1.

Since Eppler does not teach or suggest creating a mathematical georeferencing function, it also does not disclose or suggest “revising the mathematical georeferencing function when a new point pair is received,” as recited in claim 1. For at least the foregoing reasons, Eppler does not teach or suggest all of the steps recited in claim 1.

Schipper also does not supply these deficiencies of Eppler. The Examiner has cited Schipper, alleging that “in the abstract [Schipper] teaches first and second maps.” See Final Office Action, page 7. Even assuming this allegation is correct, Schipper does not disclose or suggest “creating a mathematical georeferencing function, based on the first point pair and the second point pair, for assigning corresponding geographic coordinates to any one of the plurality of pixel locations,” as recited in claim 1.

The Examiner alleges in the Advisory Action that Schipper, in col. 14, lines 8-12, “teaches the b-coefficients  $b_{11}$ ,  $b_{12}$ ,  $b_{21}$ , and  $b_{22}$  (see equation 95) will change as soon as one or more of the locations of the landmarks L1 and/or L2 changes.” See Final Office Action, page 3. The Examiner makes this allegation in connection with the step of claim 1 that recites “revising the mathematical georeferencing function when a new point pair is received.” Applicants disagree that Schipper teaches or suggests such a step. Instead, Schipper uses landmarks and other monuments contained in an “old” map to determine a user’s location relation to the landmarks on the “old” map. See col. 5, lines 10-20. In other words, the teaching pointed to by the Examiner discloses updating coefficients when the location of a landmark changes. Schipper, however, does not disclose or suggest creating a mathematical georeferencing function. Accordingly, Schipper does not disclose or suggest “creating a mathematical georeferencing function based on the first point pair and the second point pair, wherein the mathematical georeferencing function may assign appropriate geographic coordinates to any one of the plurality of pixel locations,” as recited in claim 1.

For at least the above reasons, Eppler and Schipper, whether taken alone or in combination, do not disclose or suggest all of the elements of claim 1. Therefore, the

Examiner has not established a *prima facie* case of obviousness with respect to claim 1. Accordingly, Applicants respectfully request the Examiner to withdraw the rejection of claim 1 under 35 U.S.C. § 103(a).

Claims 2-4, 6-13, 21, and 22 depend from allowable claim 1. Accordingly, Applicants also respectfully request the Examiner to withdraw the rejection of claims 2-4, 6-13, 21, and 22 under 35 U.S.C. 103(a).

Independent claims 14 and 19, while of a different scope from claim 1 and each other, include recitations similar to claim 1 and were rejected on the same grounds. Accordingly, Applicants respectfully request the Examiner to withdraw the rejection of claims 14 and 19 for at least the reasons given above with respect to claim 1. Claims 16-18 and 20 depend from claims 14 and 19, and Applicants also respectfully request the Examiner to withdraw the rejection of these claims under 35 U.S.C. § 103(a) at least due to their dependence.

### **CONCLUSION**

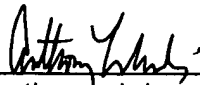
In view of the foregoing remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: December 14, 2005

By:   
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